Aviation English for Flight Training

Jennifer Roberts
Aviation English Specialist
College of Aeronautics
Embry-Riddle Aeronautical University, Worldwide
Embry-Riddle Aeronautical University

• Fully-accredited, independent, non-profit university
• Three campuses: **Daytona Beach, Florida, Prescott, Arizona**, and **Worldwide**
  • 32,000 students
• Oldest (1926) and most prestigious aviation-related university in the world
• More than 70 undergraduate and graduate degrees + Professional Education

**Worldwide Campus:**
• 130 campuses all over the world
• Classroom-based, real-time virtual classrooms, online
Jennifer Roberts

- MA Applied Linguistics and ESL, Georgia State University
- Teaching Experience:
  - Three university Intensive English Programs (IEPs)
  - Tsinghua University (China)
  - Guangzhou University (China)
  - University of Mataram (Indonesia)
  - Embry-Riddle Aeronautical University
- Aviation English Specialist: design and teach programs for aviation English both locally and worldwide
Today’s Agenda

1. Define aviation English
2. Explore an accident
3. Expand our definition of aviation English
4. Aviation English for Flight Training
5. Other ERAU aviation English programs
What is Aviation English?
Radiotelephony (RTF) provides the means by which pilots and ground personnel communicate with each other. The information and instructions transmitted are of vital importance in the safe and expeditious operation of aircraft. Incidents and accidents have occurred in which a contributing factor has been the use of non-standard procedures and phraseology. The importance of using correct and precise standardized phraseology cannot be overemphasized.

“While ICAO standardized phraseology has been developed to cover many circumstances, it cannot address all pilot and controller communication needs.”

- ICAO Document 9835
Avianca 52: 1990

- Bogotá → New York
- Boeing 707
- Ran out of fuel on approach to JFK (three holding patterns)
- 65 of 149 passengers, and 8 of 9 crew members, were killed
  - 73 total fatalities
- National Transportation Safety Board (NTSB): emergency was not declared properly and ATC did not understand how serious the problem was
Avianca 52: 1990

“Twice in these moments, the crew told controllers that they were running low on fuel. But they did not declare an emergency, nor did they object to their newly assigned route, which although it was a tighter circle than the first approach, still took them out over the Long Island Sound.

‘Did you tell them we have an emergency?’ the pilot asked his co-pilot, who was handling communications with the controllers.

‘I told them we're low on fuel,’ he answered.”
<table>
<thead>
<tr>
<th>Time</th>
<th>Captain</th>
<th>First Officer</th>
<th>ATC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2124:06</td>
<td><strong>Digale que estamos en emergencia.</strong> <em>(Tell him that we are in an emergency.)</em></td>
<td><strong>FO to Captain</strong></td>
<td><strong>FO to ATC</strong></td>
</tr>
<tr>
<td>2124:08</td>
<td></td>
<td></td>
<td><strong>That's right to one eight zero on the heading and ah we'll try once again we're running out of fuel</strong></td>
</tr>
<tr>
<td>2124:17</td>
<td><strong>Que dijo.</strong> <em>(What did he say?)</em></td>
<td></td>
<td><strong>Maintain two thousand feet one eighty on the heading I already told him that we intend to try again because now we can’t.</strong></td>
</tr>
<tr>
<td>2124:18</td>
<td></td>
<td></td>
<td><strong>And Avianca zero five two heavy ah I’m going to bring you about fifteen miles northeast and then turn you back on for the approach. Is that fine with you and your fuel?</strong></td>
</tr>
<tr>
<td>2124:22</td>
<td><strong>Digale que estamos en emergencia.</strong> <em>(Tell him that we are in an emergency.)</em></td>
<td></td>
<td><strong>I guess so thank you very much</strong></td>
</tr>
<tr>
<td>2124:25</td>
<td><strong>Did you tell him?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2124:28</td>
<td><strong>Yes sir. I already told him.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2126:35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2130:32</td>
<td></td>
<td></td>
<td><strong>Avianca five two climb maintain three thousand</strong></td>
</tr>
<tr>
<td>2130:36</td>
<td></td>
<td></td>
<td><strong>Ah negative sir we just running out of fuel we okay three thousand now okay</strong></td>
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<td></td>
<td></td>
<td><strong>Avianca five two climb maintain three thousand</strong></td>
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</table>
1. The flightcrew did not adequately communicate its increasingly critical fuel-situation to the controllers who handled the flight.

2. The first officer, who made all recorded transmissions to U.S. controllers, was sufficiently proficient in English to be understood by air traffic control personnel.

3. The first officer incorrectly assumed that his request for priority handling by air traffic control had been understood as a request for emergency handling. The captain experienced difficulties in monitoring communications between the flight and air traffic control.

4. The controllers' actions in response to AVA052's requests were proper and responsive to a request for priority handling. They did not understand that an emergency situation existed.

5. The first officer, who made all recorded radio transmissions in English, never used the word "Emergency," even when he radioed that two engines had flamed out, and he did not use the appropriate phraseology published in United States aeronautical publications to communicate to air traffic control the flight's minimum fuel status.
Avianca 52: 1990

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- In Spanish, “to have just done” something can be expressed as “Acabar de:”
  - “Acabo de llegar en casa.” = I have just arrived home.
  - “Acabamos de terminar combustible.” = We have just run out of fuel.
- However, in English, the word “just” has several meanings...
“We just running out of fuel”

**Specificatory:** “Just” can be used to show that something occurred right before:
- “We have just had lunch.”
- “We have just lost all four engines.”

**Restrictive:** “Just” can be used to indicate a small amount of something:
- “You have just one chance to pass.”
- “We are just five minutes away.”

**Emphatic:** “Just” can be used to emphasize a point:
- “That is just what I mean.”
- “That is just fine.”

**Depreciatory:** “Just” can be used to minimize, or make less serious, a fact:
- “I’m just kidding.”
- “He just has his private pilot license.”
“We just running out of fuel”

• The controller would have had to guess what grammatical meaning the FO was trying to express...
  • His structure was “we just running out of fuel”

• Did he mean,
  • “We are just running out of fuel.” (Depreciatory)

...or did he mean...

• “We have just run out of fuel.” (Specificatory)

Depreciatory: The use of “just” can minimize a fact:
  “I’m just kidding.”

Specificatory: “Just” can be used to show that something occurred right before:
  “We have just had lunch.”
ICAO’s Response

- Establishment of Language Proficiency Requirements
- Operational Level 4: “minimum level acceptable to ensure safe operations” for pilots or controllers operating in international environments

<table>
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<tr>
<th>Level</th>
<th>Pronunciation</th>
<th>Structure</th>
<th>Vocabulary</th>
<th>Fluency</th>
<th>Comprehension</th>
<th>Interaction</th>
</tr>
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<tr>
<td>Operational 4</td>
<td>Pronunciation, stress, rhythm, and intonation are influenced by the first language or regional variation but only sometimes interfere with ease of understanding</td>
<td>Basic grammatical structures and sentence patterns are used creatively and are usually well controlled. Errors may occur, particularly in unusual or unexpected circumstances, but rarely interfere with meaning.</td>
<td>Vocabulary range and accuracy are usually sufficient to communicate effectively on common, concrete, and work-related topics. Can often paraphrase successfully when lacking vocabulary in unusual or unexpected circumstances.</td>
<td>Produces stretches of language at an appropriate tempo. There may be occasional loss of fluency on transition from rehearsed or formulaic speech to spontaneous interaction, but this does not prevent effective communication. Can make limited use of discourse markers or connectors. Fillers are not distracting.</td>
<td>Comprehension is mostly accurate on common, concrete, and work-related topics when the accent or variety used is sufficiently intelligible for an international community of users. When the speaker is confronted with a linguistic or situational complication or an unexpected turn of events, comprehension may be slower or require clarification strategies.</td>
<td>Responses are usually immediate, appropriate, and informative. Initiates and maintains exchanges even when dealing with an unexpected turn of events. Deals adequately with apparent misunderstandings by checking, confirming, or clarifying.</td>
</tr>
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Pilot-Controller Communication
Aeronautical Communications

Where is communication happening in this picture?
Where Language Impacts Safety
What is Aviation English?
What is Aviation English?
What is Aviation English?
Need English to Function in Aviation Community
Growth in aviation in areas of the world where English isn’t the primary language

Non-native English speakers travel to English-speaking countries for training

Students begin training in English

A lack of English language proficiency presents problems

“We need help!”

“Hi Jennifer! It’s the same old story. International student begins flight training and cannot seem to grasp the material because of English proficiency.”
Growth in aviation in areas of the world where English isn’t the primary language

Non-native English speakers (NNES) travel to English-speaking countries for training

Students are trained in English language skills needed for flight training

Students begin training in English

Students, flight instructors, and administrators notice a lack of English language proficiency

“We need help!”

Students are trained in English language skills needed for flight training
Growth in aviation in areas of the world where English isn’t the primary language

Non-native English speakers (NNES) travel to English-speaking countries for training

Students are trained in English language skills needed for flight training

Students begin training in English

Students are successful and complete flight training in a timely and costly manner
Aviation English for Flight Training

1. Use English to learn about aviation.
   • Focus on six ICAO skills:
     - Interchange
     - Fluency
     - Comprehension
     - Structure
     - Vocabulary
     - Pronunciation
   • Develop speaking, listening, and even reading abilities

2. Use aviation to learn English.
   • Foundational aviation knowledge:
     - Parts of an aircraft
     - Flight controls
     - Aerodynamics
     - Airports
     - Aviation weather
     - Human factors in aviation
Parts of an Airplane

1. Watch video; take notes
2. Review content of video through interactive games and activities
3. Work with four partners to dub over the original video
Clearance Delivery

Speed Dating

Radio Communication
Clearance Delivery
Speed Dating

Pilots: close your books!
Controllers: use your books (A or B)
Radio Communication

• Create a more accurate representation of a “flight deck” in the classroom
• Increase “workload”
• Method:
  • Toss basketballs around the room
  • Play LiveATC.net
  • Stand back-to-back to prevent non-verbal cues and eye contact
Aviation English for Flight Training

- Four-week, 120 hour, **intensive** aviation English course
  - 6 hours per day, 5 days per week
- Miami campus: 5600 NW 36th St., Suite 110
- June 4 – June 29 (four weeks)
- Classes meet: 0900 – 1600 (one hour for lunch)
- Fee: $2,500
- Register: proed.erau.edu/Englishflight
Aviation English for Flight Training

• Who should take this course?
  • Non-native English speakers before beginning flight training
    • Enter flight training prepared and confident
  • Non-native English speakers who have begun flight training, but are struggling with language proficiency
    • Gain the skills needed to avoid higher costs and a longer time in training
Aviation English for Flight Training

• Many flight schools want to admit more international students
  • This is a solution for providing language training!
  • Aviation is growing rapidly in areas of the world where English is not the first language...
    • Flight schools must send students back to their countries with adequate English language proficiency
Other ERAU Courses and Programs: Aviation English for Flight Training Online

- Five Courses:
  1. The Five Basic Parts of an Airplane
  2. The Aircraft Engine
  3. Aviation Weather
  4. Aerodynamics
  5. Airports

- Self-paced, with comprehension quizzes and final activities which are graded by an instructor
Other ERAU Courses and Programs: Embry-Riddle Language Institute (ERLI)

- Intensive English Program for university-bound students
- Aviation-related courses (Aviation Topics and English for VFR Flight)
- Complete program = admitted to ERAU
- Semester-long courses

erli@erau.edu
Aviation Topics

- History of ERAU
- Parts of an Airplane
- Flight Controls
- Four Forces of Flight
- Airplane Design and Considerations
- Fields of Aerospace Engineering
- Air Traffic Control
- Important Organizations
- Human Factors in Aviation
- Crew Resource Management
- Accident Investigation
- Airport Operations

Content Sources:
1. Subject Matter Experts
2. Embry-Riddle Training Materials
3. Facility Tours
Observing an ERAU Class

1. Research ERAU classes in Campus Solutions
2. Email professors
3. Attend class
4. Summarize experience

"I wasn’t expecting that I will like this experiment...I learned many things in this lecture, and I wish if I can observe this class again. I used to watch in YouTube education movies or some episodes about Robots and unmanned aircrafts, but it was first time to observe lecture about this subject. The professor was well prepared and he has a good background about this kind of operation. Moreover, I had chit-chat with him after the class, and I found out he is a pilot and he still flies aircraft. I really like the idea of observe classes, and I will start to request to observe more classes. Thank you."

Last Wednesday, I observed one class at Embry Riddle Aeronautical University called Macroeconomics in order to improve my listening skill and knowledge. This course was explained by the professor who is an excellent teacher. Firstly, I had some difficulties to understand and to listen because the professor was using a lot of academic words and it was my first time to listen to him. But, after twenty minutes, I began to listen and understand what he was teaching.
INTERNATIONAL CONFERENCE

Managing Communication as a Factor in Aviation Safety

The ICAO LPRs – Have we just scratched the surface?

- The effect of language and culture on communication as a human factor
- The language needs of the wider aviation professions
- Incorporating communication strategies into best practices for training and testing

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Florida, USA

hosted by
EMBRY-RIDDLE
Aeronautical University

for further information
www.icaea.aero
Thank you!

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Register now: http://proed.erau.edu/courses/aviation-english-for-flight-training